REMARKS

Claims 1, 2, 4-25, and 28-31 are pending in the present application. In the Office Action mailed April 9, 2003, the Examiner rejected claims 23-25 under 35 U.S.C. §102(e) as being anticipated by Gross et al. (USP 6,310,352). The Examiner next rejected claims 1, 2, and 4-8 under 35 U.S.C. §103(a) as being unpatentable over Gross et al. Claims 9-14 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gross et al. Claims 15, 16, and 19-22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hoffman (USP 6,115,448) in view of Gross. Claims 15, 17, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al. (USP 5,901,198) in view of Gross et al. Claims 28-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hoffman in view of Gross et al.

The Examiner objected to the drawings under 37 CFR 1.83(a) as allegedly failing to show every feature of the invention specified in the claims. Specifically, the Examiner objected to the drawings as failing to show a polyhedron fiber optic scintillator and a polyhedron photodiode. In light of this objection, Applicant respectfully refers the Examiner to Figs. 4 and 6-7 of the application. One skilled in the art would readily appreciate that "polyhedron" refers to an object defined by multiple planar surfaces. As such, Applicant respectfully believes that Fig. 4 properly shows a fiber optic scintillator and photodiode defined by planar surfaces and as such satisfies the definition of polyhedron fiber optic scintillators and polyhedron photodiodes. Withdrawal of the objection is therefore requested.

The Examiner also objected to the drawings as allegedly failing to show "a photodiode coupled to the scintillator generally perpendicular to both the first and the second directions". Again, Applicant makes reference to Fig. 4 which illustrates a pixilated array of photodiode elements positioned beneath a pixilated array of scintillation elements. Figs. 6 and 7 illustrate that the x-ray's path and the light paths are parallel to one another. As such, one skilled in the art would readily recognize in light of that shown in Fig. 4 as well as that shown in Figs. 6-7, that the photodiode is coupled to a scintillator generally perpendicular to both the first and second directions. As such, Applicant respectfully believes that every feature of the invention specified in the claims is properly shown in the drawings. Withdrawal of the objection to the drawings is respectfully requested

Regarding the rejection of claims 23-25, the Examiner asserts that Gross et al. teaches each and every claimed limitation. Specifically and with regard to claim 23, the Examiner asserts that "Gross et al. disclosed a method of manufacturing a fiber optic scintillator cell having optical gain, the method comprising the steps of: fashioning a first component of scintillating material

(BGO); fashioning a second component of optically stimulated material (laser-active rare-earth ion); and intermixing the first component and the second component in a single composite structure (Fig. 4)." However, claim 23 calls for a method of manufacturing a fiber optic scintillator cell having optical gain by one of intermixing a first component and a second component in a single composite structure and forming a first component in a single layer, forming a second component in a single layer, and connecting the first and second components to one another in a discretely layered structure. The Examiner failed to provide any reference to Gross et al. with respect to the steps of forming a discretely layered structure. In fact, in the rejection of claims 1, 2, and 4-8 under 35 U.S.C. §103(a), the Examiner admits that "Gross et al. did not teach that the first component and the second component are arranged in a discretely layered stack." Therefore, by the Examiner's own admission, 35 U.S.C. §102(e) is not the appropriate basis of rejection for claims 23-25. At best, the rejection of claims 23-25 should have been made under 35 U.S.C. §103. While Applicant does not concede that which is called for in claims 23-25 is taught or suggested by Gross et al., Applicant respectfully requests that the Examiner provide a proper basis of rejection, if any, for claims 23-25 in a non-final Action. However, as will be pointed in greater detail below with respect to the rejection of claims 1,2, 4-8, Applicant respectfully believes that Gross et al. neither teaches nor suggests that which is called for in claims 23-25 and, therefore, reliance on Gross et al. in rejection under 35 U.S.C. §103(a) for a rejection of claims 23-25 would also be unsustainable.

The Examiner rejected claims 1, 2, and 4-8 under 35 U.S.C. §103(a) as being unpatentable over Gross et al. The Examiner acknowledged that Gross et al. does not teach that the first component and the second component are arranged in a discretely layered stack. However, the Examiner concluded that "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a fiber optic scintillator cell formed of the first component and the second component in discretely layered stack, since a person would be motivated to provide the first component and the second component in any shape and size as long as the scintillation light produced by the first component reaches the second component and the amplification of the scintillation light is achieved and detected." To do so, states the Examiner, is simply a matter of "design choice". Applicant respectfully disagrees with the conclusion reached by the Examiner.

Before responding substantively to the basis of rejection provided by the Examiner, Applicant requests that the Examiner provide an Affidavit under 37 CFR 1.104(d)(2). The Examiner's assertion that the claimed invention is simply a matter of "design choice relative to

that taught by Gross et al." indicates that the Examiner is basing the rejection on personal knowledge. 37 CFR 1.104(d)(2) provides that "when a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the references must be supported, when called for by the Applicant, by the Affidavit of such employee, and such Affidavit shall be subject to contradiction or explanation by the Affidavits of the Applicant and other persons." Pursuant to this provision, Applicant requests that the Examiner provide an Affidavit as required to substantiate a rejection based on facts within the personal knowledge of the Examiner.

Regarding the rejection of claims 1, 2, and 4-8, the Examiner purports that it would have been obvious to modify the teachings of Gross et al. to form a discretely layered stack as long as scintillation light produced by a first component reaches a second component in the amplification of the scintillation light is achieved and detected. While the Examiner acknowledges that Gross et al. does not teach a discretely layered stack, the Examiner suggests such a arrangement is obvious. The Examiner's conclusion, however, contradicts that which is specifically taught by Gross et al. In fact, Gross et al. teaches away from a discretely layered stack arrangement.

Gross et al. teaches a tubular or rod-like formation wherein a fiber core is positioned concentric to a jacket. See Fig. 1 of '352. The distinctions between a tubular or rod-like configuration and a discretely layered formation are clear and numerous. For example, a discretely layered formation is planar whereas a tubular configuration is curvilinear. Additionally, in a tubular configuration such as that taught by Gross et al., the optical fiber portion of the arrangement is entirely enclosed in a jacket. However, in a discretely layered stack formation, the scintillation portion of the arrangement is not enclosed by the optical amplification portion. Further, the construction taught by Gross et al. does not support incorporation into a detector array wherein photodiodes or other photosensitive elements are coupled directly to the scintillator for data collection.

Claims 9-14 and 31 also stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gross et al. Similar to the rejection of claims 1, 2, and 4-8, the Examiner asserts that the claimed invention is simply a matter of design choice. Again, Applicant requests that the Examiner provide an Affidavit as set forth under 37 CFR 1.104(d)(2) with facts supporting the Examiner's position. Additionally, Applicant refers the Examiner to the remarks set forth in the Amendment/Response filed January 15, 2003 wherein Applicant set forth the patentable distinctions between that which is presently claimed and that suggested by Gross et al. The Examiner did not specifically respond to the remarks provided in the January 15, 2003

Amendment/Response and, as such, Applicant re-presents those remarks for consideration. Specifically, the structural orientation called for in claim 9 is not possible with the radiation detection devices taught and disclosed by Gross et al. For example, in Fig. 4 of '352, Gross et al. teaches an infinite x-ray beam that impinges on the "face" of crystal 20 whereupon light generated by the crystals is amplified and admitted out of a bottom surface of a crystal. See Fig. 4. As such, the detection device taught by Gross et al. receives x-rays in one direction and outputs scintillation light in a second direction generally perpendicular or orthogonal to the direction of the x-ray path.

In contrast, claim 9 calls for a fiber optic scintillator configured to receive high frequency electromagnetic energy from a first direction having a first intensity and further configured to output light energy in a second direction generally parallel to the first direction having a second intensity, wherein the second intensity exceeds the first intensity. In this regard, both the first direction or x-ray path and the second direction or light path are generally parallel to one another. While the Examiner concluded that such a configuration was a matter of design choice, Gross et al. teaches a configuration that is an opposite to that specifically called for. Gross et al. teaches perpendicular directions or paths – not parallel paths. The Examiners reliance on Gross et al. suggests that one skilled in the art would rely upon Gross et al. to solve problems similar to those identified by the Applicant in the Background of Invention section of the application. However, one skilled in the art reading Gross et al. would be motivated to design a CT detector with perpendicular x-ray and light paths as opposed to the claimed parallel paths. As such, one skilled in the art, relying on Gross et al. would not be motivated to develop a device similar to that claimed. As such, Applicant respectfully believes that the rejection of claims 9-14 and 31 under 35 U.S.C. §103(a) cannot be sustained.

Claims 15, 16, and 19-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hoffman in view of Gross et al. The Examiner has relied upon Hoffman for its teaching of a basic CT apparatus and once again relied upon the teachings of Gross et al. to suggest that the claimed scintillator cell configured to output light energy having an intensity exceeding an intensity of high frequency electromagnetic energy detected by the cell is obvious. As detailed in the January 15, 2003 Amendment/Response, Hoffman is directed to a commonly known CT system similar to the CT system described and shown in Figs. 1-2 of the present application. Gross et al., however, is directed to an MR tomography system. Gross et al. identifies the advantages of its invention as not employing electronic detectors that may be adversely affected by the high static magnetic field, time switched strong magnetic field gradients, pulsed incident

electromagnetic waves in the megahertz region, and scarcity of available space for additional detection devices commonly associated with MR tomography systems. These concerns, however, are not prevalent in CT systems which do not take advantage of the diagnostic benefits of high static magnetic fields and time switched strong magnetic field gradients typically associated with MR based systems. As such, one skilled in the art would not be motivated to combine the radiation detection device taught by Gross et al. with the CT system described in Hoffman.

Additionally, the CT system described by Hoffman and similarly described in the present application makes full use of electronic detectors and photodiodes. As such, to incorporate the radiation detection devices taught by Gross et al. and such a CT system would violate the permissible implementations recognized by Gross et al. Simply, one skilled in the art would not be motivated to incorporate the radiation detection device taught by Gross et al. into the CT system described and taught by Hoffman. Further, even if combined, the result would not, could not, result in the scintillator as called for in amended claim 1. That is, such a combination would require a cutting and reshaping of the device taught by Gross et al. that the reference does not teach or suggest. As pointed out previously, the device taught by Gross et al. is tubular in nature wherein scintillation material completely shrouds the optically stimulated material. It is not possible to achieve the claimed arrangement based on the device taught or suggested by Gross et al. without the aforementioned cutting. Therefore, Applicant respectfully believes that which is called for in claims 15, 16, and 19-22 is neither taught nor suggested by Hoffman or Gross et al.

Claims 15, 17, and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al. in view of Gross et al. The Examiner relies on Crawford et al. for its disclosure of CT system comprising a rotatable gantry having an opening to receive an object to be scanned, a high frequency electromagnetic energy projection source configured to project high frequency electromagnetic energy toward the object, a scintillator array having a plurality of scintillator cells and other basic elements of a CT system. The Examiner acknowledged, however, that Crawford et al. does not teach that scintillator cell is configured to output light energy having an intensity exceeding an intensity of a high frequency electromagnetic energy detected by the cell. As such, the Examiner has once again relied upon the teachings of Gross et al. to substantiate the rejection. Responsive thereto, Applicant respectfully refers the Examiner to the remarks set forth above with respect to the rejection of claims 15, 16, and 19-22 regarding the Examiner's reliance on Hoffman. Specifically, as noted above, Gross et al. teaches a radiation detection device applicable to MR tomography, not computed x-ray tomography. Simply put, one skilled in the art would not be motivated to implement the detection device of Gross et al. into a CT system as the

drawbacks overcome by the invention of Gross et al. are not found in CT systems, i.e. high static magnetic fields and time switched strong magnetic field gradients. As such, Applicant respectfully believes that which is called for in claims 15, 17, and 18 is neither taught nor suggested by Crawford et al. and/or Gross et al. Withdrawal of the rejection is therefore requested.

The Examiner next rejected claims 28-30 under 35 U.S.C. §103(a) as being unpatentable over Hoffman in view of Gross et al. Responsive thereto, Applicant respectfully refers the Examiner to the remarks set forth wherein Applicant addressed the Examiner's improper reliance on Hoffman and Gross et al. It should be noted, however, that claim 28 calls for a pixilated array of scintillation element as well as a pixilated array of photodiodes. The radiation detection device disclosed and suggested by Gross et al. is clearly incapable of a pixilated arrangement similar to that called for in claim 28. Moreover, as noted previously, the radiation detection device taught by Gross et al. is designed for MR tomography applications not computed tomography applications.

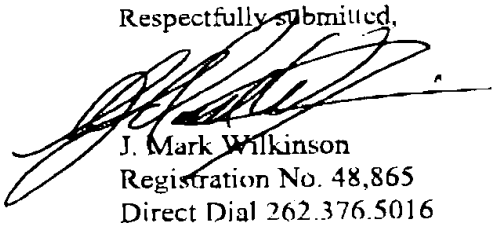
Applicant appreciates the Examiner's withdrawal of the rejection of claim 1 based on Hoffman et al.

Applicant directs the cancellation of claim 2.

Therefore, in light of the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1, 4-25, and 28-31.

Applicant appreciates the Examiner's consideration of these Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,



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